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## **Consumers' perceptions toward E-Service Quality, Perceived Value, Purchase and Loyalty Intentions**

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### **ABSTRACT**

**Purpose:** Customers' Perceptions and Attitudes are significant aspects of consumer behavior for Marketing. Such perceptions and attitudes are measured as advantages, carrying special weight for the company. Furthermore they shape beliefs strongly relating to the Service Quality, while maximizing the magnitude of customer satisfaction.

This paper will explore customer behavior in the light of customers' intentions towards E-Service Quality, Perceived Value, Purchase and Loyalty Intentions, with the view to provide information and feedback to enterprises.

**Methodology:** To test the research hypotheses, a survey was carried out on 302 Greek customers of 85 Greek e-shops. The data of the survey were analysed using the Implicative Statistical Analysis technique. The Similarity Diagram and the Implicative Diagram were utilized to interpret the data. The instrument used to measure customers' Loyalty in relation to E-Service Quality, is E-S-QUAL, while that measuring their perception vis-a-vis the Web Site's Performance is E-RecS-QUAL. Their attitudes with regard to Perceived Value and Loyalty Intentions were measured utilizing four 4- and five 5-point likert scale questions. And Overall Perceived Quality is measured by one 5-point likert scale question. In addition, Customer Satisfaction is measured by one 5-point likert scale question.

**Findings:** The results of the study demonstrate that all four dimensions of customers' E-Service Quality, namely Efficiency, Fulfillment, System Availability and Privacy do not affect Perceived Value as well as Purchase and Loyalty Intentions.

In addition dimensions relating to the Web Site's Performance, namely Responsiveness, Compensation and Contact do not have a direct effect on Overall E-Service Quality.

**Research Limitations/Implication:** The paper calls for more research on how customers

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influence e-service quality and satisfaction for a Web Site's Performance and Web based services.

**Originality/value:** The paper expands existing literature, focusing on e-shopping, while using a multi-dimensional construct to measure customers' perceptions.

**Key words:** E-Service Quality, Perceived Value, Loyalty

### **Theoretical Frame work**

**Overall Service Quality:** Deming, is regarded as a "guru" in the field of Total Quality (Stefanatos, 2000; Anastasiadou, 2015; Anastasiadou & Zirinoglou, 2015; Anastasiadou, 2016). He considers Quality to be a sign of customer contentment and advocates that it must be focused on the satisfaction of immediate and future customer needs (Steiakakis & Kofidis, 2010). Deming et al. (1994) considered expected service quality as the level of quality customers demand and expect from service providers.

According to Feigenbaum (1986) the concept of "Quality" is strongly related to Cost. He claimed that "Quality" is unswerving with customer satisfaction at the lowest possible Cost (Feigenbaum, 1986).

Ishikawa, another "guru" in the field of Total Quality (Stefanatos, 2000; Anastasiadou, 2016). Ishikawa (1976, 1985) claimed that a necessary and sufficient condition for Improving Quality is the knowledge of those customer demands that need to be satisfied. Grönroos (1982) associated service quality with customers' perceived expectations.

Parasuraman et al. (1988) defined perceived quality as "global judgment or approach to the superiority of the service". Zeithaml et al. (1996) declared that perceived service quality can be portrayed as the customers' outlook of a service that leads to their satisfaction and future buying intentions. Jiang and Rosenbloom (2005) suggest that in the era of technology, where one can perform purchases and other transactions with a click of a button, service quality constitutes a competitive advantage for businesses and organizations.

Eshghi et al. (2008) argued that service quality has been defined as the overall appraisal of a service by customers. Furthermore, Culiberg and Rojsck (2010) proposed that service quality should be correlated with customers' preferences. It is calculated as the difference between perceived/expected service and the service actually rendered (Parasuraman et al., 1985). Parasuraman et al. (1988) designated perceived quality to be the "global judgment or attitude with respect to the service's superiority".

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Zeithalm et al. (1996) and Zeithaml et al. (1988) suggest that the perceived quality of a service can be described as the prospect of a service's customers leads to their satisfaction and guides their future purchase intentions.

Parasuraman et al. (1985) have identified five distinct gaps between customers' expectations and perceptions:

(Gap 1). The knowledge gap, which refers to the difference between what customers expect of a service and what management perceives that customers expect (Musaba et al., 2014).

(Gap 2). The standards gap, which refers to the difference between what management perceives that customers expect and the quality and specifications set for service delivery (Musaba et al., 2014).

(Gap 3). The delivery gap, referring to the difference between the quality specifications set for a service delivery and the actual quality of service delivery.

(Gap 4). The communications gap which refers to the difference between the actual quality of service delivered and the quality of service described in the firm's external communications, such as brochures and mass media advertising (Musaba et al., 2014).

(Gap 5). The service gap which summarizes all the other gaps and describes the difference between customers' expectations and their perceptions of the service they receive (Musaba et al., 2014). Gap 5 between the expected and the perceived service is considered to be the most significant one.

***Service Quality and e-Service Quality:*** argued that traditional service quality is connected with all non-Internet debased customers' exchanges with firms. Service quality represents the comparison between what customers believe a firm should and could offers in relation to firm' actual service performance. E-service quality (E-SQ) seems to exhibit differences as well as similarities with respect to traditional service quality, due to the fact that customers' satisfaction depends on their reaction to the use of technology, such as their technological readiness, or their beliefs regarding issues relating to security, reliability and trust towards technology.

Zeithaml et al. (2000) argued that the evaluation a Web site's quality by consumers includes, besides their personal experiences deriving from their interactions with the site, also post interaction service aspects such as fulfillment etc. Parasuraman et al. (2005) argued that E-SQ

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is defined in such a way that it encompasses of all phases of a customer's interactions with a web site. It takes into account the extent to which the Web Site facilitates efficient and effecting purchasing and delivery. Web site reliability, responsiveness, access, flexibility, navigation easiness, efficiency, assurance and trust, security and privacy, system availability, contact and compensation are some of the major attributes connected with e-SQ (Parasuraman et al., 2005).

***Purchase Intentions:*** Customer satisfaction is the approach that proceeds from comparing the expectations for performance and the perceived performance after familiarising oneself with the service (Oliver, 1980). Customer satisfaction consigns to both tangible and intangible supplies and its definition contains both transactional as well as accumulative measures (Jones and Suh, 2000) and is the resulting attitude of the assessment of the service by the consumer.

Repurchase intention is defined as the judgment by an individual to purchase a product or use a service all over again, the choice to take part at a future activity with the same service provider or in the form of a repurchase (Hellier et al., 2003; Zeithalm et al., 1996).

***Customer Satisfaction:*** Spreng et al. (1995) define customer satisfaction as one of marketing's core concepts. Customer satisfaction is the key objective of every enterprise (Anastasiadou, 2014; Anastasiadou, 2015; Anastasiadou, 2016; Anastasiadou et al., 2016a; Anastasiadou et al., 2016b).

It captures very important needs and many organizations have understood the value of satisfied customers, in the sense that they will be positively inclined towards their product offers, there will be more positive word of mouth, a repurchase of their products and loyalty toward their organization, their products and their services. Customer satisfaction is an estimation of the fulfilment of customer expectations with respect to the quality of the product or service and the price paid. Morgan et al. (2005) consider customer satisfaction is the key objective of every firm. Business performance is strongly related to the satisfaction of its customers.

#### **Scope of the study**

For Marketing, the Perceptions and Attitudes of consumers are significant aspects of their behavior. They are measured as advantages carrying special weight for a firm. Furthermore

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they shape beliefs relating to Service Quality and maximize the magnitude of customer satisfaction.

This paper will explore customer behavior in the light of their intentions towards E-Service Quality, Perceived Value, Purchase and Loyalty Intentions, aiming to provide information and feedback to firms.

### **The Instruments/ Measures**

The first group relates to conceptual construct Efficiency and comprises of 8 statements (EFF<sub>i</sub>) (e.g. EFF5: It loads pages fast) while the second group regards conceptual construct System Availability (SYS<sub>i</sub>) and comprises of 4 statements (e.g. SYS1: This site does not crash). The third group regards conceptual construct Fulfilment (FUL<sub>i</sub>) and comprises of 7 statements (e.g. FUL3: It quickly delivers what I order, and, finally, the fourth and last group regards conceptual construct Privacy (PRI<sub>i</sub>) and comprises of 3 statements (e.g. PRI3: This site protects information about my credit card). These four conceptual constructs contribute to the creation of Latent Variable, E-S-QUAL that measures service quality delivered by Web Sites (Parasuraman et al., 2005).

E-RecS-QUAL was measured using the multidimensional and hierarchical scale by Parasuraman et al. (2005), consisting of 11 items, rated on a five-point Likert format, ranging from 1 (strongly disagree) to 5 (strongly agree). Customers rated the Web Site's Performance, on the basis of the constructs of Responsiveness, Compensation and Contact.

The first group relates to conceptual construct Responsiveness and comprises of 5 statements (RES<sub>i</sub>) (e.g. RES2: This site handles product returns well, while the second group regards conceptual construct Compensation (COM<sub>i</sub>) and comprises of 3 statements (e.g. COM1: This site compensates me for issues that may arise). Finally, the third and last group regards conceptual construct Contact (CON<sub>i</sub>) and comprises of 3 statements (e.g. CON3: It offers the ability to speak to a representative if there is a problem). These three conceptual constructs contribute to the creation of Latent Variable, E-RecS-QUAL. E-RecS-QUAL relates to the handling of service problems and inquires by the Web sites.

Perceived Value was measured by four items (PER<sub>i</sub>). Customers rated the Web Site on each item using a scale of 1 (poor) to 10 (excellent) (e.g. PER2. The overall convenience of using this site).

Loyalty Intentions was measured using five items (LOY<sub>i</sub>). Customers rated their likelihood of engaging in each behavior on a five-point Likert format, ranging from 1 (very unlikely) to 5 (very likely).

The assessment of the overall quality of the e-shop's services was evaluated using another statement of the five -point Likert scale, which investigates the extent by which the overall view of the respondent on the services extended by the e-shop is very positive (GPO) (e.g. I am positively disposed towards the services offered by the e-shop).

The assessment of the customer's degree of satisfaction is evaluated based on another five-point on the Likert scale statement, investigating the extent by which the respondent is satisfied from the purchasing experience he had with the e-shop (CSF) (e.g. I am satisfied from my purchasing experience with the e-shop).

### **Research Hypotheses**

The present study will examine the following hypotheses:

Ho<sub>1</sub>: Factors Efficiency, Availability, Fulfilment and Privacy contribute to the conceptual construct E-S-QUAL.

Ho<sub>2</sub>: Web Site's Efficiency is related to Perceived Value

Ho<sub>3</sub>: Web Site's Efficiency is related to Loyalty Intentions

Ho<sub>4</sub>: Web Site's Efficiency is related to Overall Perceived Quality

Ho<sub>5</sub>: Web Site's Efficiency is related to Customer Satisfaction

Ho<sub>6</sub>: Web Site's Availability is related to Perceived Value

Ho<sub>7</sub>: Web Site's Availability is related to Loyalty Intentions

Ho<sub>8</sub>: Web Site's Availability is related to Overall Perceived Quality

Ho<sub>9</sub>: Web Site's Availability is related to Customer Satisfaction

Ho<sub>10</sub>: Web Site's Fulfilment is related to Perceived Value

Ho<sub>11</sub>: Web Site's Fulfilment is related to Loyalty Intentions

Ho<sub>12</sub>: Web Site's Fulfilment is related to Overall Perceived Quality

Ho<sub>13</sub>: Web Site's Fulfilment is related to Customer Satisfaction

Ho<sub>14</sub>: Web Site's Privacy is related to Perceived Value

Ho<sub>15</sub>: Web Site's Privacy is related to Loyalty Intentions

Ho<sub>16</sub>: Web Site's Privacy is related to Overall Perceived Quality

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- Ho<sub>17</sub>: Web Site's Privacy is related to Customer Satisfaction
- Ho<sub>18</sub>: Perceived Value is related to Loyalty Purchase Intentions
- Ho<sub>19</sub>: Perceived Value is related to Overall Perceived Quality
- Ho<sub>20</sub>: Perceived Value is related to Customers Satisfaction
- Ho<sub>21</sub>: Loyalty Purchase intentions is related to Overall Perceived Quality
- Ho<sub>22</sub>: Loyalty Purchase intentions is related to Customers Satisfaction
- Ho<sub>23</sub>: Overall Perceived Quality is related to Customer Satisfaction
- Ho<sub>24</sub>: Factors Responsiveness, Compensation and Contact contribute to the conceptual construct E-RecS -QUAL.
- Ho<sub>25</sub>: Web Site's Responsiveness is related to Perceived Value
- Ho<sub>26</sub>: Web Site's Responsiveness is related to Loyalty Intentions
- Ho<sub>27</sub>: Web Site's Responsiveness is related Overall Perceived Quality
- Ho<sub>28</sub>: Web Site's Responsiveness is related to Customer Satisfaction
- Ho<sub>29</sub>: Web Site's Compensation is related to Perceived Value
- Ho<sub>30</sub>: Web Site's Compensation is related to Loyalty Intentions
- Ho<sub>31</sub>: Web Site's Compensation is related to Overall Perceived Quality
- Ho<sub>32</sub>: Web Site's Compensation is related to Customer Satisfaction
- Ho<sub>33</sub>: Web Site's Contact is related to Perceived Value
- Ho<sub>34</sub>: Web Site's Contact is related to Loyalty Intentions
- Ho<sub>35</sub>: Web Site's Contact is related to Overall Perceived Quality
- Ho<sub>36</sub>: Web Site's Contact is related to Customer Satisfaction
- Ho<sub>37</sub>: Perceived Value is related to Loyalty Purchase Intentions
- Ho<sub>38</sub>: Perceived Value is related to Overall Perceived Quality
- Ho<sub>39</sub>: Perceived Value is related to Customers Satisfaction
- Ho<sub>40</sub>: Loyalty Purchase intentions is related to Overall Perceived Quality
- Ho<sub>41</sub>: Loyalty Purchase intentions is related to Customers Satisfaction
- Ho<sub>42</sub>: Overall Perceived Quality is related to Customer Satisfaction

### **Methodology**

To test the research hypotheses, a survey was conducted using 302 Greek customers of 85 Greek e-shops. The data of the survey were analysed using the Implicative Statistical Analysis

technique. To interpret the data the Similarity Diagram and Implicative Diagrams were employed.

**The sample:** The sample comprises of 302 respondents, of whom 171 (56.6%) were men and 131 (43.4%) were women.

With respect to the respondents' age, 157 (52%) were from 18 to 24 years old; 71 (23.5%) from 25-34; 43 (14.2%) from 35 to 44 years; and finally 31 (10.3%) from 45-54 years old.

With respect to their marital status, 213 (70.5%) were single; 81 (26.8%) were married and 8 (2.6%) were separated or divorced.

As for the respondents' education, one (0.3%) answered that he has completed elementary education, 137 (45.4%) secondary, 120 (39.7%) tertiary and, finally, 42 (13.9%) hold a post-graduate or doctoral title.

180 of the 302 respondents (59.6%) stated that their income is less than €10.000; 84 (27.8%) from €10.000 to €24.999; 25 (8.3%) from €25.000 to €49.999; 3 (1%) from €50.000 to €74.999 and, finally, 10 (3.3%) did not respond to this question.

Table 1: Demographics

Demographic data	Category	Frequency (N=111)	Relevant frequency (%)
Sex	Male	171	56.6
	Female	131	43.4
Age	18-24	157	52.0
	25-34	71	23.5
	35-44	43	14.2
	45-54	31	10.3
Family status	Single	213	70.5
	Married	81	26.8
	Divorced/Separated	8	2.6
Education	Elementary education	1	0.3
	Secondary education	137	45.4
	Tertiary education	120	39.7
	Postgraduate studies /	42	13.9

	Doctorate		
Income	<€10.000	180	59.6
	€10.000-€24.999	84	27.8
	€25.000-€49.999	25	8.3
	€50.000-€74.999	3	1
	Did not respond	10	3.3

**Implicative Statistical Analysis:** Gras (1979) notes the need to use a method of data analysis which will constitute “a precise mechanism for the collection and processing of data that are appropriate to reinforce or refute a hypothesis, to draw conclusions.” A characteristic example of this is a method of analysis that prioritizes and connects factors. The method proposed by Gras (1979) is deemed to be appropriate in cases where one seeks: (a) the principal distinguishing factors for a population vis-a-vis its variables; (b) a partitioning of the variables; (c) a typology or a classification—a hierarchical classification of similarities and (d) an implication between variables or classes of variables—an implication tree or implication hierarchy and so on.

The implicative method allows monitoring the creation of a skill and permits the finding of unadulterated or fixed (items) (variables) in the thoughts of social subjects (Gras, & Kuntz, 2008). These are not causality relations, but, rather, an index of quality, and allows one to assert that success in an item entails success in some other item, with which the first is connected. Correspondingly, failure in some item entails failure in some other item connected to the first one. Thus, one gets: (a) the Implicative Diagram and (b) the Similarity Diagram. The Implicative Diagram shows the different implicative relations that exist between variables. The Similarity Diagram presents the similarity relations holding between various items. Items which, when encountered by social subjects, the latter appear to behave in the same manner, are grouped together (Lerman, 1981). The horizontal connections in accented black denote the existence of similarity at a significance level of 99%. The data were analysed by chic software (Couturier, & Gras, 2005; Couturier, 2008).

## Results

***E-S-QUAL\_Similarity Diagram:*** The similarity diagram presents groupings of statements based on customer behavior when completing the questionnaire. Similarities in emphasized black are significant, at a significance level of 99%. The similarity diagram (Figure 1) presents three distinct similarity groups (Group A, Group B) (Diagram 1).

The first similarity group (Group A) refers to similarity relations between variables between two sub-groups. The first one PRI1-PRI2-PRI3 (similarity: 0.713066) that regard construct Privacy and the second one SYS4-SYS1-SYS2-SYS3 that regard construct System Availability (similarity: 0.752447) and show the similar tactic employed by the interviewees to treat and perceive the implicit latent variables/Constructs Privacy and System Availability. Specifically, similarity PRI1-PRI2 (similarity: 0.877793) shows the similar tactic adopted by interviewees with respect to their perception whether Web site protects information about their Web-shopping behaviour (PRI1) as well as whether it shares or not their personal information with other sites (PRI2).

This group PRI1-PRI2 is connected to a third variable, PRI3, which belongs to the conceptual construct Privacy and relates to the whether the site protects information about customers cards, with a similarity relation which, however, appears to be of quite special significance (PRI1-PRI2-PRI3) (similarity: 0.713066).

Similarity SYS4-SYS1 (similarity: 0.880147) illustrates the parallel approach adopted by interviewees with respect to their perception whether pages at the site do not freeze after customers enter their order information (SYS4) as well as the site availability for business (SYS1).

Similarity SYS2-SYS3 (similarity: 0.744794) demonstrates the analogous approach adopted by interviewees with respect to their perception whether the site launches and runs right away (SYS2) as well as the site prospects avowing crash to (SYS3). Similarity SYS4 SYS1-SYS2-SYS3 is of a medium importance (similarity: 0.537773).

Similarity PRI1-PRI2-PRI3-SYS4-SYS1-SYS2-SYS3 (similarity: 0.0673247) makes it clear that the two constructs Privacy and System Availability are independent.

The second similarity group (Group B) refers to similarity relations between variables between three sub-groups. The first one EFF4-EFF1-EFF2 (similarity: 0.388431) that regards part of the construct Efficiency, the second one FUL5-FUL6-FUL2-FUL4-FUL7-FUL1-

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FUL3 (similarity: 0.891837) that regards construct Fulfilment and the third one EFF7-EFF8-EFF3-EFF5-EFF6 (similarity: 0.356499) that regards the last part of the construct Efficiency show the similar tactic employed by the interviewees to treat and perceive the implicit latent variables/constructs Efficiency and Fulfilment.

Specifically, similarity EFF1-EFF2 (similarity: 0.627968) shows the similar tactic adopted by interviewees with respect to their perception whether the site makes it easy to find what customers need (EFF1) as well as whether it makes it easy to get anywhere on the site (EFF2). This group EFF1-EFF2 is connected to a third variable, EFF4, which belongs to the conceptual construct Efficiency and relates to the weather information at the site is well organized, with a similarity relation which, however, appears to be of a minimum significance EFF4-EFF1-EFF2 (similarity: 0.388431).

The second sub-group of group B, FUL5-FUL6-FUL2-FUL4-FUL7-FUL1-FUL3 (similarity: 0.891837) regards construct Fulfilment.

Specifically, similarity FUL5-FUL6 (similarity: 0.997263) shows the similar tactic adopted by interviewees with respect to their perception whether the site has in stock the items the company claims to have (FUL5) as well as whether it is truthful about its offerings (FUL6).

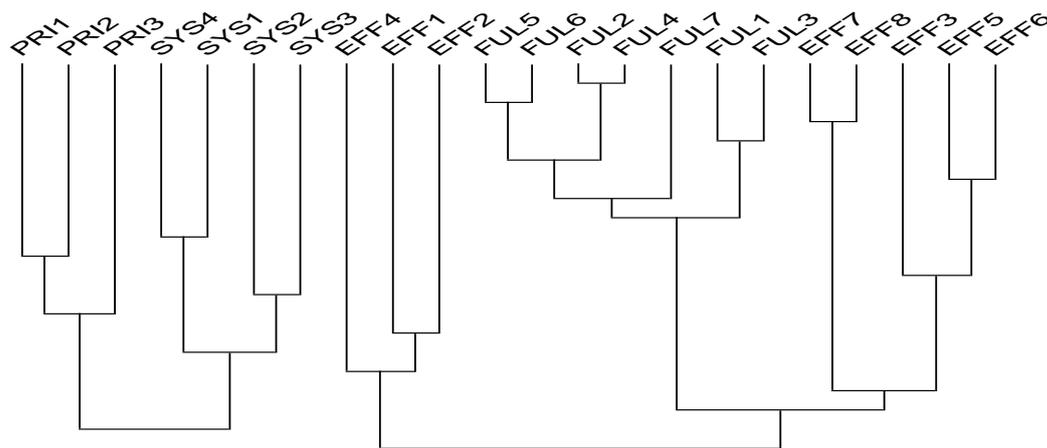
Similarity FUL2-FUL4 (similarity: 0.999998) (almost 1) shows the similar tactic adopted by interviewees with respect to their discernment whether the site makes items available for delivery with a suitable time frame (FUL2) as well as whether it sends out the item ordered (FUL4).

Similarity FUL5-FUL6-FUL2-FUL4 (similarity: 0.97595) appears to be of an important significance. This group FUL5-FUL6-FUL2-FUL4 is connected to a fifth variable, FUL7, which belongs to the conceptual construct Fulfilment and relates to the weather site makes accurate promises about delivery of products FUL5-FUL6-FUL2-FUL4-FUL7 (similarity: 0.933838).

Similarity FUL1-FUL3 (similarity: 0.989351) shows the similar tactic adopted by interviewees with respect to their perception whether the site delivers orders when promised (FUL1) as well as whether it quickly delivers when they order (FUL3).

The group FUL5-FUL6-FUL2-FUL4-FUL7 is connected to similarity FUL1-FUL3 and regards construct Fulfilment. It appears to be of special significance (similarity: 0.891837).

The third sub-group of group B, EFF7 EFF8-EFF3-EFF5 EFF6 (similarity: 0.356499) regards part of construct Efficiency.



Arbre des similarites : C:\Users\User\Desktop\zefh\ZEFH INPLICATIVE\_3.csv



Diagram 1: E-S-QUAL\_Similarity Diagram

Specifically, similarity EFF7-EFF8 (similarity: 0.990579) shows the similar tactic adopted by interviewees with respect to their perception whether the site enables customers to get on to it quickly (EFF7) as well as whether the site is well organized (EFF8). Similarity EFF5-EFF6 (similarity: 0.949668) shows the similar approach adopted by interviewees with respect to their perception whether the site loads its pages fast (EFF5) as well as whether the site is simple to use (EFF6).

Variable EFF3 is connected to EFF5-EFF6 with a strong similarity EFF3-EFF5-EFF6 (similarity: 0.838882). The group EFF7-EFF8 is connected to similarity EFF3-EFF5-EFF6 and regards part of the construct Efficiency. It appears to be of minor significance (similarity: 0.356499).

The group FUL5-FUL6-FUL2-FUL4-FUL7-FUL1-FUL3 is connected to EFF7-EFF8- EFF3-EFF5-EFF6 (similarity: 0.150454). Their similarity appears to be unimportant (similarity: 0.150454).

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Finally, second similarity group (Group B), EFF4-EFF1-EFF2-FUL5-FUL6-FUL2-FUL4-FUL7-FUL1-FUL3-EFF7-EFF8-EFF3-EFF5-EFF6 (similarity: 0.027464) has unimportant similarity. Thus, it is crystal clear that the implicit latent variables Efficiency and Fulfilment are independent. Therefore the null hypothesis  $H_{01}$  is rejected.

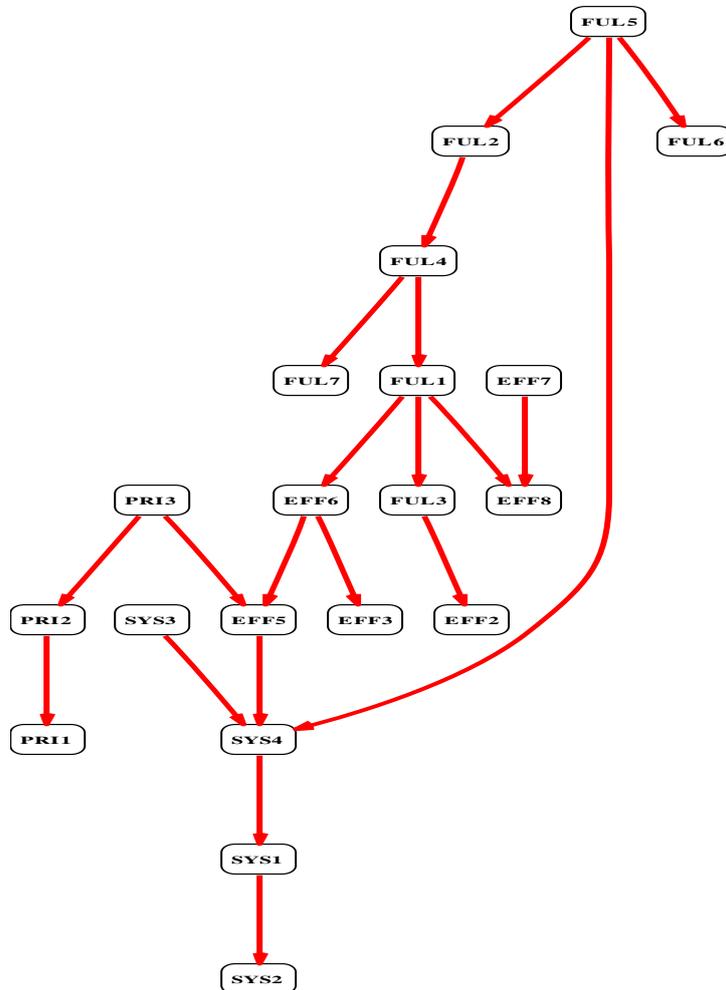
***E-S-QUAL Implicative diagram:*** The implicative diagram shows the implicative relations between the variables (Diagram 2). In more detail, the first leg of the implicative chain PRI3->PRI2-> PRI1 shows the belief that the site protects information about customers' cards, with a similarity relation (PRI3) leads the customers to think that it does not share personal information with other sites (PRI2) and it protects information about their Web-shopping behaviour (PRI1).

The second leg of the implicative chain SYS3->SYS4->SYS1->SYS2 shows that the belief that the site does not crash (SYS3) leads the customers to think that pages in the site do not freeze after customers enter their order information (SYS4), that the site is always available for business (SYS1) and that it properly launches and operates (SYS2).

The third leg of the implicative chain has the following parts: FUL5->FUL6, FUL5->FUL2->FUL4->FYL7,FYL1, FYL1->FUL3->EFF2, FYL5->SYS4. The implicative chain FUL5->FUL6 shows that the belief that the site has in stock the items the company claims to have (FUL5) leads the customers to think that it is truthful about its offerings (FUL6). The implicative chain FYL5->FUL2->FUL4->FYL7,FYL1, shows that the belief that the site has in stock the items the company claims to have (FUL5) leads the customers to think that the site makes items available for delivery within a reasonable time frame (FUL2), it sends out the item ordered (FUL4), it makes accurate promises about delivery of products (FUL7).

The implicative chain FUL1->FUL3->EFF2, shows that the belief that the site delivers orders when promised (FUL1) leads the customers to consider it quickly delivers when they order (FUL3) and it makes it easy to get anywhere on the site (EFF2).

The implicative chain FUL5->SYS4 illustrates that the belief that the site has in stock the items the company claims to have (FUL5) leads the customers to think that the site does not freeze after customers enter their order information (SYS4).



Graphe implicatif : C:\Users\User\Desktop\zefh\ZEFH INPLICATIVE\_3.csv 99 95 90 85

Diagram 2: E-S-QUAL\_Implicative Diagram

There also a few more implicative relations: EFF7->EFF8, FUL3->EFF2, EFF6->EFF3, EFF5 and PRI3->EFF5. The implicative chain EFF7->EFF8 points up that the belief that the site enables customers to get on to it quickly (EFF7) leads the customers to think that the site is well organized (EFF8). The implicative chain FUL3->EFF2 illustrates that the belief that the site quickly delivers when they order (FUL3) leads the customers to think that it makes it easy to get anywhere on the site (EFF2). The implicative chain EFF6->EFF3, EFF5 points up that

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the belief that the site is simple to use (EFF6) leads the customers to think that the site enables customers to complete a transaction quickly (EFF3) and the site loads its pages fast (EFF5).

Finally, the implicative chain PRI3->EFF5 points up that the belief that the site protects information (PRI3) leads the customers to think that site loads its pages fast (EFF5).

In order to test the hypotheses Ho<sub>2</sub>-Ho<sub>23</sub>, an implicative chain involved the constructs Efficiency, System Availability, Fulfilment and Privacy, Perceived Value, Loyalty Intentions, Overall Perceived Quality and Customer Satisfaction is evaluated below.

***E-S-QUAL\_Perceived Value\_Loyalty Intetions\_GPO\_CSF\_Implicative Diagram:*** The E-S-QUAL\_Perceived Value\_Loyalty Intentions\_GPO\_CSF\_Implicative Diagram shows the implicative relations between the variables (Diagram 3). In more detail, the implicative chain LOY2->LOY3,LOY4 shows implicative relations only between variables of a specific construct named Loyalty Intentions. The implicative chain LOY4->PER4 shows implicative relations only between the two variables, one related to Loyalty Intentions construct and one related to Perceived Value construct. Thus, the null hypotheses Ho<sub>18</sub> and Ho<sub>10</sub> could not be accepted.

The implicative chain FUL2->FUL4->FUL7,FUL1 proves implicative relations only between variables of a specific construct named Fulfilment. The implicative chain FUL5->FUL2->PER4 establishes implicative relations only between two variables of a specific construct named Fulfilment and a variable related to Perceived Value. The implicative chain PER3->PER2->FUL1->FUL3->EFF2 demonstrates implicative relations between two variables related to Perceived Value and two variables related to Fulfilment and one variable related to Efficiency construct. In addition the implicative chain PER3->PER2->PER1->EFF5 demonstrates implicative relations between two variables related to Perceived Value and one variable related to Efficiency construct. In consequence, the null hypotheses Ho<sub>2</sub> and Ho<sub>10</sub> could not be accepted.

The implicative chain FUL2->LOY5 verifies implicative relations only between the two variables, one related to Fulfilment and one related to Loyalty Intentions. Thus, the null hypothesis Ho<sub>11</sub> could not be accepted.

The implicative chain FUL1->EFF6,EFF8, verifies implicative relations only between the here variables, one related to Fulfilment and two related to Efficiency construct. The

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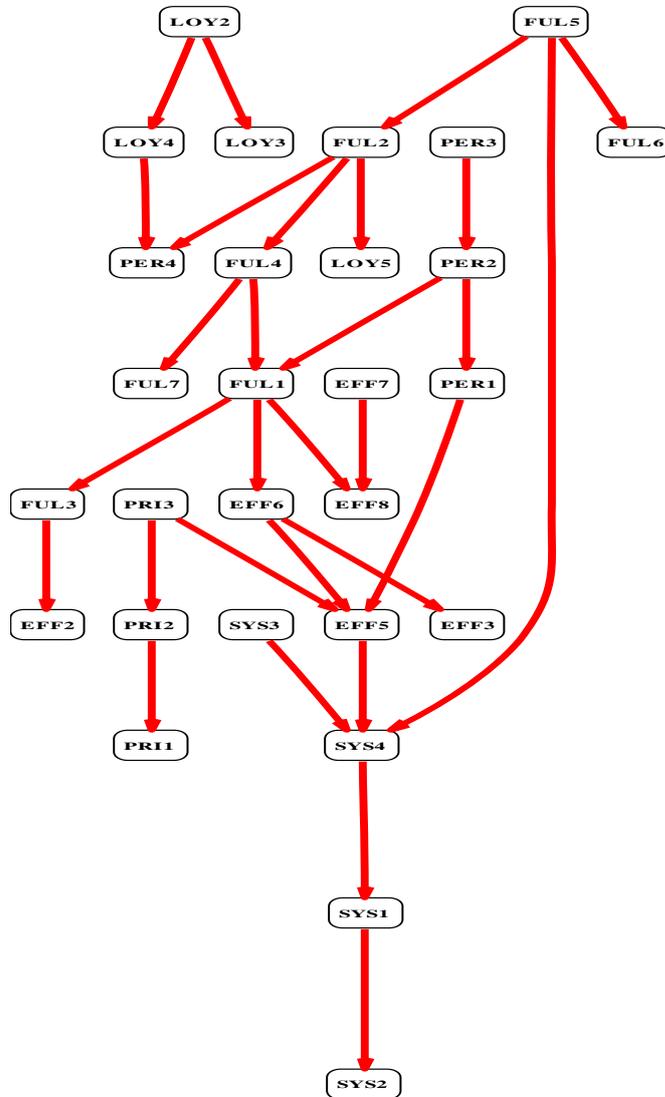
implicative chains EFF7->EFF8 and EFF6->EFF5, EFF3 exhibit implicative relations between the same construct named Efficiency.

The implicative chain PER3->PER2->PER1->EFF5->SUS4->SUS1->SUS2 reveals implicative relations between three variables related to Perceived Value, one variable related to Efficiency construct and three variables related to System Availability and one variable related to Efficiency construct. Accordingly, the null hypothesis  $H_{06}$  could be accepted.

The implicative chain EFF5->SUS4->SUS1->SUS2 reveals implicative relations between one variable related to Efficiency and three variables related to System Availability. The implicative chain SUS3->SUS4->SUS1->SUS2 exhibits implicative relations between the same construct named System Availability. The last implicative chain FUL5->FUL6, SUS4 exhibits implicative relations between two variables related to Fulfilment and one related to System Availability.

There are no implicative relations between Web Site's Efficiency and Loyalty Intentions, between Web site's Efficiency and Overall Perceived Quality, and between Web site's Efficiency and Customer Satisfaction. Hence, the null hypotheses  $H_{03}$ ,  $H_{04}$  and  $H_{05}$  could not be accepted.

There are no implicative relations between Web Site's System Availability and Loyalty Intentions, between System Availability and Overall Perceived Quality, and between System Availability and Customer Satisfaction. Consequently, the null hypotheses  $H_{07}$ ,  $H_{08}$  and  $H_{09}$  could not be accepted.



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Diagram 3: E-S-QUAL\_Perceived Value\_Loyalty Intetions\_GPO\_CSF \_Implicative Diagram

There are no implicative relations between Fulfilment and Overall Perceived Quality, and between Fulfilment and Customer Satisfaction. Accordingly, the null hypotheses  $H_{012}$  and  $H_{013}$  could not be accepted.

There are no implicative relations between Web Site's Privacy and Perceived Value, between Web site's Privacy and Loyalty Intentions, between Web site's Privacy and Overall Perceived

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Quality, and between Web site's Privacy and Customer Satisfaction. Thus, the null hypotheses Ho<sub>14</sub>, Ho<sub>15</sub>, Ho<sub>16</sub> and Ho<sub>17</sub> could not be accepted.

There are no implicative relations between Perceived Value leads and Overall Perceived Quality and Perceived Value leads and Customers Satisfaction. Therefore, the null hypotheses Ho<sub>19</sub> and Ho<sub>20</sub> could not be accepted.

There are no implicative relations between Loyalty Intentions and Overall Perceived Quality and Loyalty Intentions and Customers Satisfaction. Therefore, the null hypotheses Ho<sub>21</sub> and Ho<sub>22</sub> could not be accepted.

Finally there is no implicative relation between Overall Perceived Quality and Customer Satisfaction. In the matter of fact those variables are not even appeared in the implicative diagram. Hence, the null hypothesis Ho<sub>23</sub> could not be accepted.

***E-RecS-QUAL\_Similarity Diagram:*** The similarity diagram presents groupings of statements based on customer behavior when completing the questionnaire. Similarities in emphasized black are significant, at a significance level of 99%. The similarity diagram (Diagram 4) presents two distinct similarity groups (Group A, Group B).

The first similarity group (Group A) refers to similarity relations between variables RES1-RES2-RES3-RES4-RES5 that regard factor Responsiveness shows the similar tactic employed by the interviewees to treat and perceive the implicit Latent Variable E-RecS-QUAL.

More specifically, the most powerful similarity in the first group, Group A, is that between variables RES2-RES3 (similarity: 0.647661) which refer to whether the Web site handles product returns well and whether the site offers a meaningful guarantee. A third variable, RES1 of conceptual construct Responsiveness, comes to complete this similarity group, group RES2-RES3. In a line is the similarity between the variables RES4-RES5 (similarity: 0.640068) which refer to whether the Web site informs the customer what to do if his/her transaction is not processed and whether it takes care of problems promptly. Although the similarity of the whole Group A is extremely weak, RES1-RES2-RES3-RES4-RES5 (similarity: 0.066533). Thus the consistency of the conceptual construct Responsiveness is disputed.

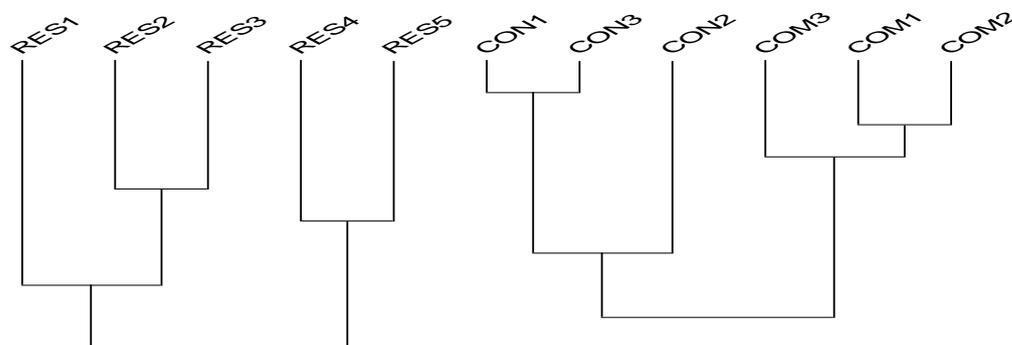
The second and third construct, Compensation and Contact, contribute towards a second similarity group, Group B, which is an independent group. The second similarity group, Group B refers to similarity relations between variables COM1-COM3-COM2-CON3-CON1-CON2 (similarity: 0.295759).

More specifically, the most powerful similarity in the second group, Group B, is that between variables CON1-CON3 (similarity: 0.973242), which refer to whether the site provides a telephone number to reach the company (CON1) and it offers the ability to speak to a lone person if there is a problem (CON3). The similarity between the variables in the subgroup CON1-CON3-CON2 (similarity: 0.594072) is of a medium importance. Thus, the consistency of the conceptual construct Contact is not disputed.

The similarity between variables COM1-COM2 (similarity: 0.928392), is also very significant, which refers to whether this site compensates the customer for the problems it creates and it compensates him/her when what he/she order doesn't arrive on time.

Overall, the entire similarity of the subgroup COM3-COM1-COM2 is very significant (similarity: 0.831234). Items COM1 and COM2 are connected to COM3 which refers to the possibility that the site picks up items the customer wants to return from the house or business. Thus, the consistency of the conceptual construct Compensation is not disputed.

Overall, the entire similarity of the group B, COM1-COM3-COM2-CON3-CON1-CON2, is insignificant (similarity: 0.295759). Consequently, Group B depicts a tiny connection between the Compensation and Contact latent variables/ constructs.



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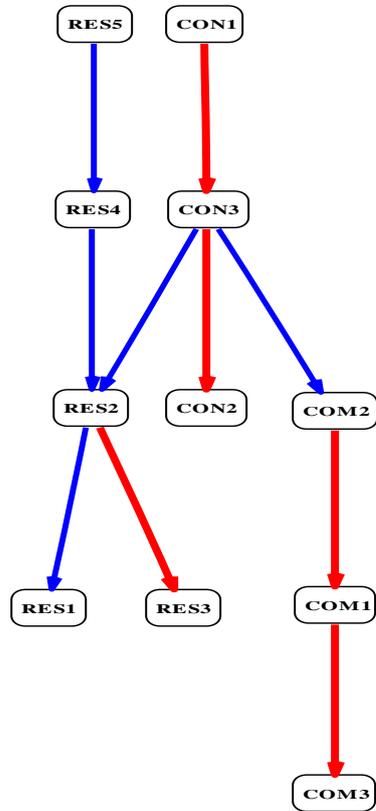
Group B

Diagram 4: E-RecS-QUAL\_Similarity Diagram

***E-RecS-QUAL Implicative Diagram:*** The E-RecS-QUAL\_Implicative Diagram shows the implicative relations between the variables (Diagram 5). In more detail, the first leg of the implicative chain RES5->RES4->RES2->RES1,RES3 shows that the belief that the site takes care of problems promptly (RES5), is that that leads the customers to think that it tells what to do in case that a transaction is not processed (RES4) and it handles product returns well (RES2), additionally it provides customers with convenient options for returning items (RES1) and consequently it offers a meaningful guarantee (RES3).

The second leg of the implicative chain CON1->CON3>CON2,RES2,COM2 makes the relation between construct Content and RES2 and COM2. Specifically, the implicative chain CON1->CON3>CON2 shows the implicative relation between the items of the construct Content. The implicative chain CON1->CON3->CON2 renders it clear that the belief that when the site provides a telephone number to reach the company, CON1, then it also offers the ability to speak to a live person if there is a problem, CON3, and it leads to the site's opportunity to have customer service representatives or availability online, CON2. In addition, the second leg of the implicative chain CON1->CON3-> CON2,RES2,COM2 shows the implicative relations between the items CON3 and RES2 and COM2. These implicative relations demonstrate some kind of relation between items of the three constructs named Content, Compensation and Responsiveness. It renders it clear that the belief that when it also offers the ability to speak to a live person if there is a problem, CON3, and it leads to belief that it handles product return well, RES2, and it compensates the customers when what they ordered delay, COM2.

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Diagram 5: E-RecS-QUAL\_Implicative Diagram

The third leg of the implicative chain COM2->COM1->COM3 shows the implicative relation between the items of the construct Compensation.

It is notable that construct Responsiveness has not any kind of connection with Compensation construct. Therefore, the null hypothesis Ho<sub>24</sub> (Ho<sub>24</sub>: Factors Responsiveness, Compensation and Contact contribute to the conceptual construct E-RecS-QUAL) cannot be accepted.

In order to test the hypotheses Ho<sub>25</sub>-Ho<sub>42</sub> an implicative chain involved the constructs Responsiveness, Compensation and Contact, Perceived Value, Loyalty Intentions, Overall Perceived Quality and Customer Satisfaction is evaluated below.

***E-RecS-QUAL Perceived Value Loyalty Intentions GPO CSF Implicative Diagram:*** The implicative diagram shows the implicative relations between the above variables (Diagram 6). In more detail, the first leg of the implicative chain RES5-> RES4->RES2->RES1,RES3

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shows implicative relations only between the variables of a specific construct Responsiveness. There is no implicative relation between the constructs Responsiveness and Perceived Value, Loyalty Intentions, Overall Perceived Quality and Customer Satisfaction. Thus, the null hypotheses  $H_{025}$ - $H_{028}$  are rejected.

The second leg of the implicative chain has the following parts,  $CON1 \rightarrow PER3 \rightarrow PER2 \rightarrow PER1 \rightarrow CON3 \rightarrow RES2$ ,  $CON2$ ,  $CON1 \rightarrow PER4$ ,  $CON3 \rightarrow RES2 \rightarrow RES1$ ,  $RES2$  and  $CON3 \rightarrow COM2 \rightarrow LOY5$ ,  $COM1$ ,  $COM3$ . As a consequence the second leg, shows implicative relations between some specific variables of the constructs Compensation and Contact with variables of the construct Perceived Value. More especially all variables of the construct Contact have implicative relations with variables of the construct Perceived Value. Thus the null hypothesis  $H_{033}$  can be accepted.

There are no implicative relations between Contact and Overall Perceived Quality, and between Contact and Customer Satisfaction. Thus, the null hypotheses  $H_{035}$  and  $H_{036}$  could not be accepted.

The third leg of the implicative chain has the following parts,  $CON1 \rightarrow LOY2 \rightarrow LOY3 \rightarrow LOY4 \rightarrow PER4$ ,  $LOY3 \rightarrow COM2 \rightarrow LOY5$ ,  $COM2 \rightarrow COM1 \rightarrow COM3$ ,  $CON1 \rightarrow LOY3 \rightarrow COM2 \rightarrow LOY5$ .

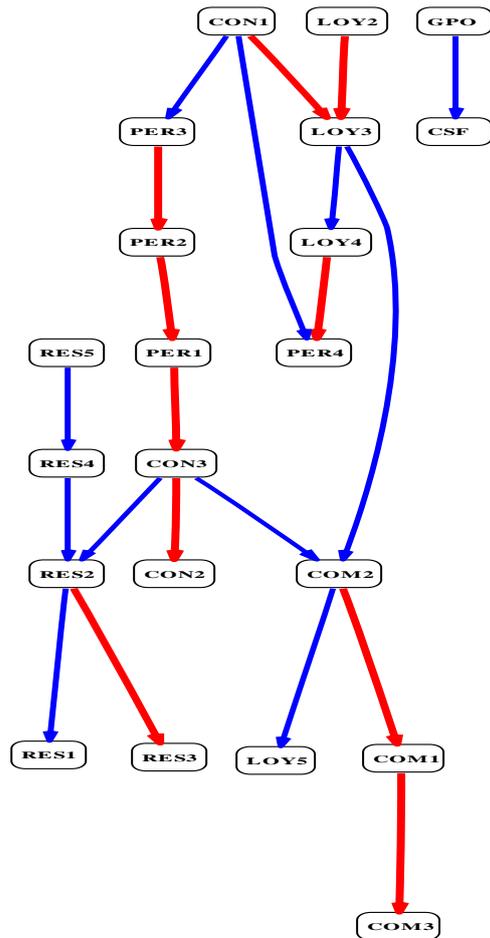
As a consequence the third leg shows implicative relations between the specific variable  $CON1$  of the construct Contact and the variables of the construct Loyalty Intentions. Accordingly, the null hypothesis  $H_{034}$  could be accepted. The third leg also shows implicative relations between the specific variables  $COM2$  and  $LOY3$  and  $LOY5$ . Thus, the null hypothesis  $H_{029}$  could not be accepted.

The third leg shows implicative relations between variables  $LOY3$  and  $LOY5$  of the construct Loyalty Intentions and the specific variable  $COM2$  of the construct Contact. Accordingly, the null hypothesis  $H_{030}$  could not be accepted. The third leg also shows implicative relations between the specific variable  $CON1$  of the constructs Contact and the variables of the construct Loyalty Intentions. Accordingly, the null hypothesis  $H_{034}$  could not be accepted.

There are no implicative relations between Compensation and Overall Perceived Quality, between Compensation and Customer Satisfaction and between Compensation and Perceived Value. Thus, the null hypotheses  $H_{031}$ ,  $H_{032}$  and  $H_{029}$  could not be accepted.

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In the chain PER3->PER2->PER1->CON3->COM2->LOY5 Perceived Value variables, PER3, PER2 and PER1, have some kind of implicative relation with LOY5 though CON3 and COM2. Hence, the null hypothesis Ho<sub>37</sub> could not be accepted.



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Diagram 6: E-RecS-QUAL\_Perceived Value\_Loyalty Intentions\_GPO\_CSF\_Implicative  
Diagram

There are no implicative relations between Perceived Value and Overall Perceived Quality, Perceived Value and Customers Satisfaction Loyalty Purchase intentions and Overall Perceived Quality, relations between Loyalty Purchase intentions and Customers Satisfaction, hence, the null hypotheses Ho<sub>38</sub>, Ho<sub>39</sub>, Ho<sub>40</sub> and Ho<sub>41</sub> could not be accepted.

The fourth leg shows implicative relations between the variables GPO and CSF, GPO->CSF. Thus the null hypothesis Ho<sub>42</sub> could be accepted.

### **Conclusions**

E-S-QUAL as designed to comprise of 4 constructs, namely Efficiency, System Availability, Fulfilment, and Privacy. The findings from the Similarity Analysis showed constructs System Availability, Fulfilment, and Privacy have significance homogeneity and internal consistence and similarity, but these traits were not exhibited by Efficiency. Efficiency construct was divided into parts; the first one consisted of items EFF4, EFF1 and EFE2 and the second one consisted of items EFF7, EFF8, EFF3, EFF5 and EFE6.

The findings from the Similarity Analysis showed that none of the four constructs, namely Efficiency, System Availability, Fulfilment, and Privacy exhibit similarity relations between them.

More specifically, it was established by the Similarity Diagram that constructs Efficiency, System Availability, Fulfilment, and Privacy are not connected with one another with similarity relations that constitute conceptual construct E-S-QUAL relating to Web-Site's Performance. Concomitantly, null hypothesis  $H_{01}$  is rejected. This result is of significant importance to Marketing, since it shows that these constructs are differentiated from each other.

In addition, there are no implicative relations connecting conceptual constructs Perceived Value, Loyalty Intentions with Overall Perceived Quality and Customer Satisfaction. Furthermore, there are no implicative relations that connect conceptual constructs Efficiency, System Availability, Fulfilment, and Privacy with Overall Perceived Quality and Customer Satisfaction. Also, there is no implicative relation that connects conceptual construct Overall Perceived Quality with Customer Satisfaction. It is notable that there are no implicative relations connecting conceptual construct Privacy with Perceived Value and Loyalty Intentions.

There are, however, some implicative relations which connect some items of conceptual constructs Efficiency, System Availability and Fulfilment with Perceived Value, but the connection is not so powerful, since the whole constructs Efficiency, System Availability and Fulfilment do not constitute part of those relations.

Further, Loyalty Intentions is only connected with Fulfilment, but the implicative relation is also powerful. The implicative relation connecting Loyalty Intentions with Perceived Value is also powerful one.

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E-RecS-QUAL was designed to comprise of 3 constructs, namely Responsiveness, Compensation and Contact. The findings from Similarity Analysis showed that constructs Compensation and Contact have significance homogeneity and internal consistence and similarity, but Responsiveness does not. Responsiveness construct was dived into parts; the first one consisted of items RES1, RES2 and RES3 and the second one consisted of items RES4 and RES5. None of these three constructs named Responsiveness, Compensation and Contact are related in pairs.

Concomitantly, null hypothesis  $H_{024}$  is rejected. This result is of significant importance to Marketing, since it shows that these constructs are differentiated from one another.

In addition, there are implicative relations connecting conceptual constructs Perceived Value, Loyalty Intentions with Overall Perceived Quality and Customer Satisfaction. According to E-RecS-QUAL there is a powerful implicative relation connecting conceptual constructs Overall Perceived Quality and Customer Satisfaction. In addition, there are powerful implicative relations connecting Perceived Value with Compensation and Contact.

Furthermore, there is a powerful implicative relation that connects conceptual construct Loyalty Intentions with Compensation.

There is also an implicative relation that connects some items of conceptual construct Responsiveness with Perceived Value, but such connections are not so powerful, since the whole construct Responsiveness is not part of this relation. There is no implicative relation that connects Loyalty Intentions with Responsiveness.

### **Managerial Implications**

The research findings lead to important managerial implications which expand the capacity of e-shops to attain a positive perceived quality for their services and high levels of satisfaction of their customers. Attention should be paid on the effects of Efficiency and Fulfilment on Customer Satisfaction and Overall Service Quality. The effects of Loyalty Intentions and Perceived Value on Customer Satisfaction and Overall Service Quality must also be considered. E-RecS-QUAL dimensions such as Responsiveness, Compensation and Contact can offer a strong assessment instrument for improving service quality. E-RecS-QUAL dimensions can assess the Web site's quality through issues that customer face. The significance of Privacy on customers' higher evaluation pertaining Web sites should be also be taken into account.

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